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Barry L. Kelmachter  
BACHMAN & LaPOINTE, P.C.  
Suite 1201  
900 Chapel Street  
New Haven, CT 06510-2802

EXAMINER

ALANKO, ANITA KAREN

ART UNIT	PAPER NUMBER
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1765

DATE MAILED: 10/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/967,098

Applicant(s)

HANSEN ET AL.

Examiner

Anita K Alanko

Art Unit

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 16-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_ 6) ☐ Other:

*Election/Restrictions*

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-15, drawn to a process, classified in class 216, subclass 2+.
- II. Claims 16-28, drawn to a composition, classified in class 252, subclass 79.1+.

The inventions are distinct, each from the other because of the following reasons:

Inventions II and I are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the composition can be used for a different process, such as cleaning or etching a different material.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Barry Kelmachter on 9/16/03 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-15. Affirmation of this election must be made by applicant in replying to this Office action. Claims 16-28 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the

application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

### ***Claim Rejections - 35 USC § 112***

Claims 1-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "significant" in claim 1 is a relative term which renders the claim indefinite. The term "significant" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claims 2-15 do not cure the indefiniteness of their base claim, and are therefore also rejected.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

*Claims 1, 2, 5-8 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Roni (US 3,844,859).*

Roni discloses a process for chemically milling a metal part without causing significant intergranular attack comprising the steps of:

providing a milling solution containing nitric acid, hydrofluoric acid, dissolved titanium (see figure), a wetting agent, and water (col.3, line 20-col.4, line 8);

maintaining said milling solution at a temperature in the range of from about 110 to 130 °F (col.3, line 41); and

immersing said metal part into said milling solution for a time sufficient to mill a desired depth on at least one surface of said part (col.4, lines 1-2).

As to claim 2, Roni discloses to add surfactant such that the milling solution has a surface tension of from about 30 dynes/cm<sup>2</sup> to about 35 dynes/cm<sup>2</sup> (col.2, lines 9-12), and up to 60 dynes/cm<sup>2</sup> (col.3, lines 20-25), which overlaps with the range cited.

As to claims 5-8, Roni discloses a range of concentrations of the dissolved titanium (see figure) which is expected to encompass the cited ranges.

As to claim 15, Roni discloses to maintain said solution in the range including 115 to about 125 °F (col.3, line 41).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

*Claims 1, 3-8, 10-11, 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adinolfi et al (US 4,563,239) in view of Hodgens, II et al (US 5,217,569).*

As to claims 1 and 15, Adinolfi discloses a process for chemically milling a metal part without causing significant intergranular attack comprising the steps of:

providing a milling solution containing nitric acid, hydrofluoric acid, dissolved titanium (inherent since titanium is etched and goes into solution as it is etched), a wetting agent, and water (col.3, lines 1-3);

maintaining said milling solution at a temperature in the range of from about 70-90 °F (col.3, line 8); and

immersing said metal part into said milling solution for a time sufficient to mill a desired depth on at least one surface of said part (col.3, lines 24-39).

Adinolfi does not disclose to maintain the milling solution at a temperature in the range of from about 110 to about 130 °F. Hodgens teaches that the temperature of a chemical milling solution is a result effective variable, i.e., the temperature affects the rate of metal removal during the etching of metals with acid etchants (col.1, lines 60-68). Hodgens also teaches that a useful temperature for etching metal parts includes 115 °F (col.5, lines 51-53), and that the range of useful temperatures depends on the concentration of the etchant. It would have been obvious to one with ordinary skill in the art to vary the temperature in the method of Adinolfi to include 110 to about 130 °F because Hodgens teaches that the optimum temperature depends on the concentration and because the temperature appears to reflect a result-effective variable which can be optimized. See MPEP 2144.05 IIB.

As to claims 3-4, Adinolfi discloses concentrations within the cited ranges (col.3, lines 1-2).

As to claims 5-8, the cited concentrations are inherent in the method of Adinolfi because titanium goes into solution as it is etched. It would have been obvious to maintain the solutions at the cited concentrations in the method of Adinolfi because the amount of titanium loading in the solution depends on the concentration of the etchants.

As to claim 10, Adinoldi discloses that the part is formed from a titanium alloy (col.2, lines 54-56).

As to claims 11, 13-14, Adinolfi does not disclose to add palladium. Hodgens teaches that it is useful to add dissolved palladium to titanium alloy etchants to reduce hydrogen absorption (col.4, lines 24-32). It would have been obvious to one with ordinary skill in the art to add palladium to the etchant in the method of Adinolfi because Hodges teaches that this is useful to reduce hydrogen absorption.

Hodgens teaches that a concentration of palladium includes 5.64 mmol/liter of acid solution (Table III) and that the amount of palladium is a result effective variable because varying the amount of palladium changes the amount of hydrogen absorbed (Table IV). It would have been still further obvious to add palladium in the concentrations cited because the amount of palladium added appears to reflect a result-effective variable which can be optimized. See MPEP 2144.05 IIB.

*Claims 1, 3-11, 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adinolfi et al (US 4,563,239) in view of Hodgens, II et al (US 5,217,569) and Nelson (US 4,556,449).*

The discussion of modified Adinolfi from above is repeated here.

As to claim 9, Adinolfi does not disclose to add fluorosurfactant. Nelson teaches that adding fluorosurfactant to metal etchants is useful (examples 3 and 4) in order to provide for more uniform etching (col.3, lines 26-34). It would have been obvious to one with ordinary skill in the art to add fluorosurfactant to the method of Adinolfi because Nelson teaches that it helps provide for more uniform etching.

*Claims 1, 3-8, 10-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adinolfi et al (US 4,563,239) in view of Hodgens, II et al (US 5,217,569) and Gulla (US 3,936,316).*

The discussion of modified Adinolfi from above is repeated here.

As to claim 12, Adinolfi does not disclose to add urea. Gulla teaches that adding urea to metal etchants is useful in order to reduce fuming and decrease consumption of acids during etching (col.2, lines 46-52). The amount is greater than 20 grams per liter (example, col.5). Urea also helps reduce pitting (col.2, lines 64-66). It would have been obvious to one with ordinary skill in the art to add urea to the method of Adinolfi because Gulla teaches that it helps reduce fuming, reduce consumption of the acid during etching, and reduce pitting. It would have been obvious to use the cited concentration of urea in the modified method of Adinolfi because



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the amount is dependent on the concentration and composition of the etchant, and it appears to reflect a result-effective variable which can be optimized. See MPEP 2144.05 IIB.

### *Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited art shows method of milling titanium alloys.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anita K Alanko whose telephone number is 703-305-7708. The examiner can normally be reached on Monday, Tuesday and Friday, 8:00 am-4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 703-305-2667. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

*Anita K. Alanko*  
Anita K Alanko  
Primary Examiner  
Art Unit 1765